FIG. 1

layer two data center network

ES: End System
IS: Intermediate System
SS: Supervisor System
BSS: Backup Supervisor System
RS: Radius Server used for Authentication, Authorization, and Accounting (AAA)

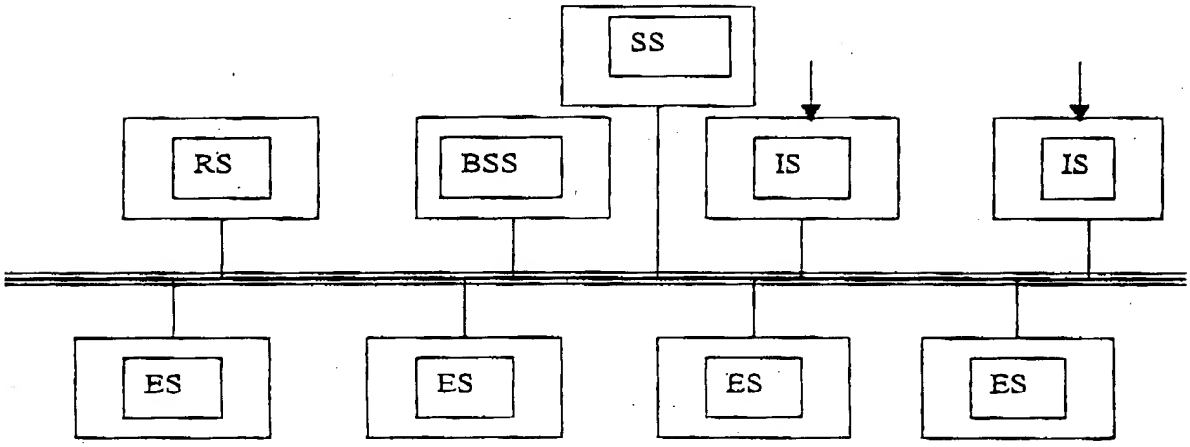


FIG. 2(a)


End System
Supervisor System
Service registration request
Service registration acknowledge
Keep-alive message
End system register its service from Control system

FIG. 2(b)


End System
Supervisor System
Service de-registration request
Service de-registration acknowledge
End system de-register its service from Control system

FIG. 3(a)

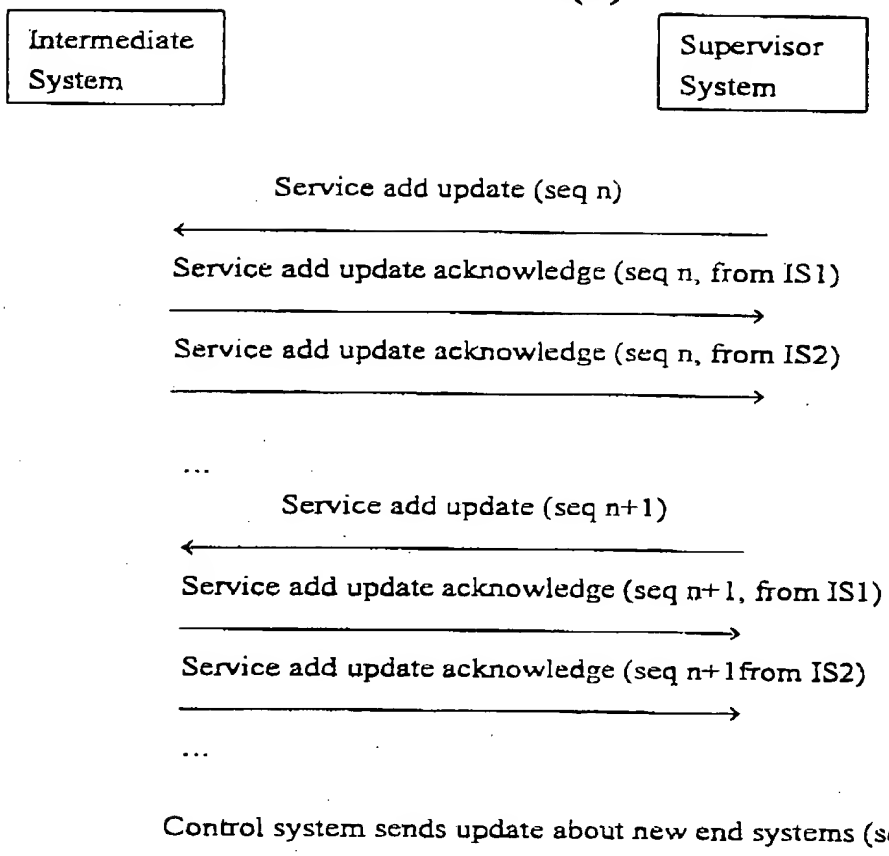

Intermediate System
Supervisor System
Service add update (seq n)
Service add update acknowledge (seq n, from IS1)
Service add update acknowledge (seq n, from IS2)
...
Service add update (seq n+1)
Service add update acknowledge (seq n+1, from IS1)
Service add update acknowledge (seq n+1from IS2)
...
Control system sends update about new end systems (servers)

FIG. 3(b)

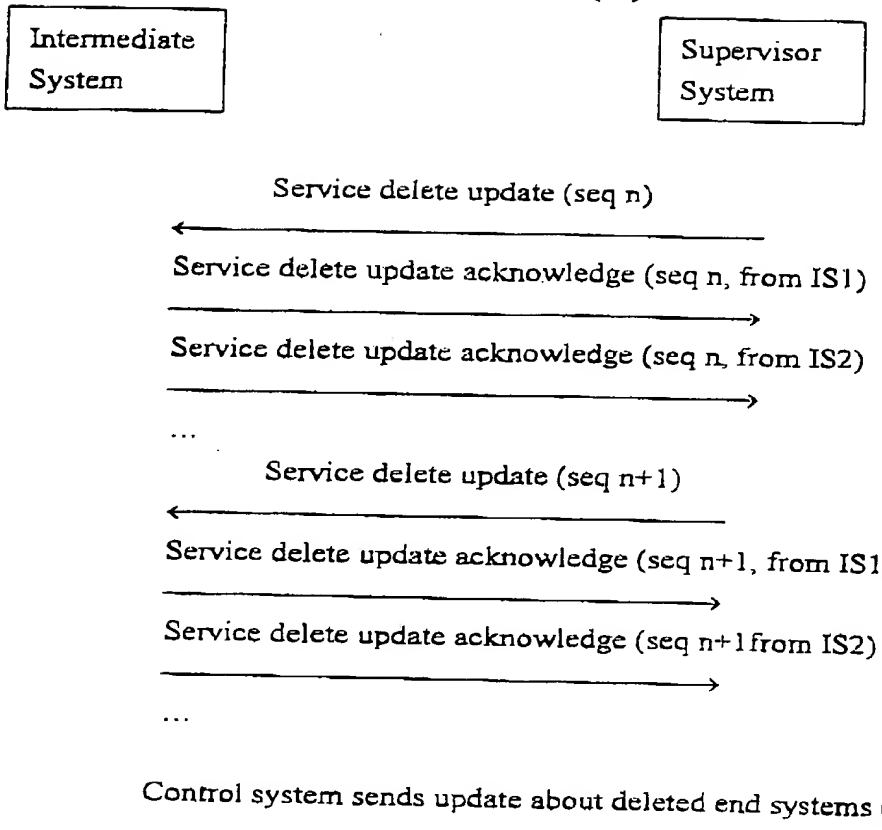
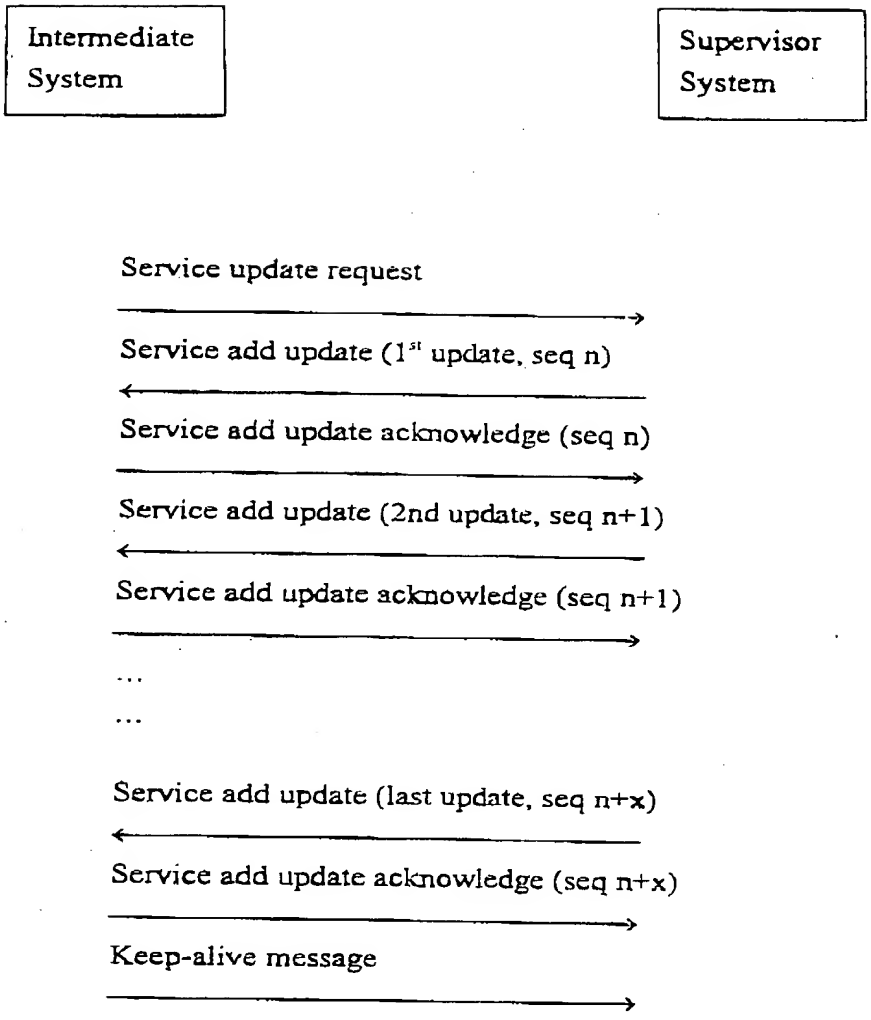

Intermediate System
Supervisor System
Service delete update (seq n)
Service delete update acknowledge (seq n, from IS1)
Service delete update acknowledge (seq n, from IS2)
...
Service delete update (seq n+1)
Service delete update acknowledge (seq n+1, from IS1)
Service delete update acknowledge (seq n+1 from IS2)
...
Control system sends update about deleted end systems (servers)

FIG. 3(c)



New intermediate system (possible an end system too) retrieve the server list for a specific type of service

FIG. 4(a)

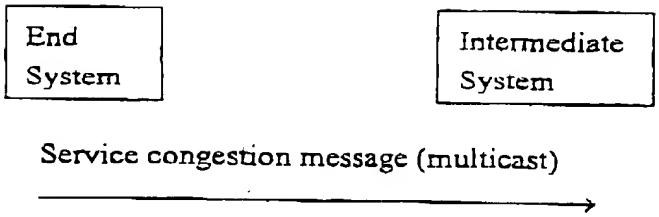


FIG. 4(b)

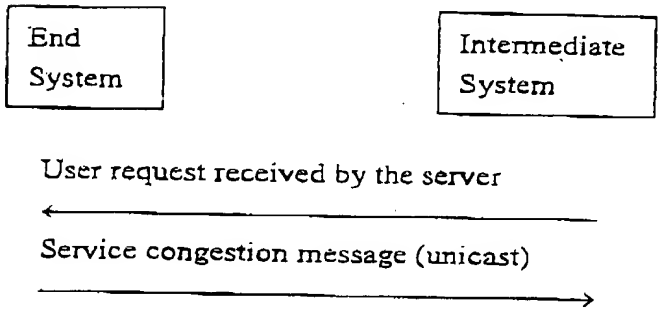


FIG. 4(c)

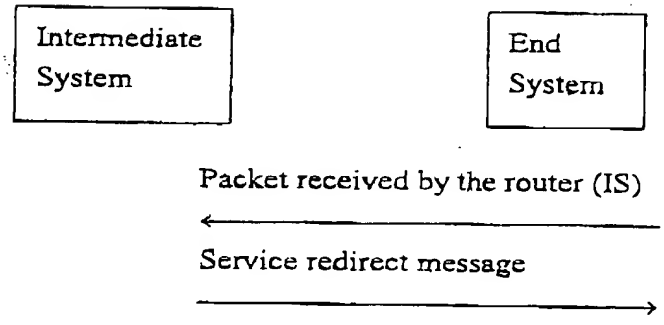


FIG. 5

Flow advertisement message

Flow advertisement acknowledge

Flow advertised by an end system

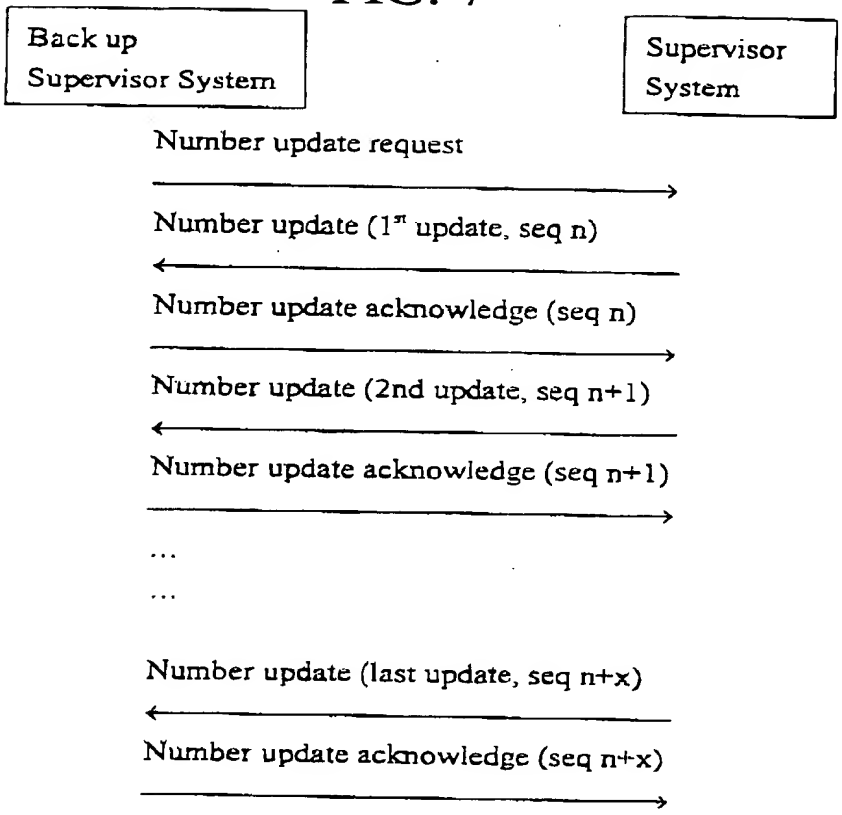
FIG. 6

Assigned number request

Assigned number reply

Request number(s) from centrally controlled number server (CS)

FIG. 7



New back up control system to retrieve the assigned number list from Primary control system

FIG. 8

Label value , 20 bits	Experimental Use, 3 bits	Bottom of stack, 1bit	Time To Live, 8 bits

label encapsulation in user packet

FIG. 9

DMAC	SMAC	16 bit Flow frame type	32 bit Flow label	Frame type	Data

DMAC	SMAC	16 bit Source frame type	32 bit Source label	Frame type	Data

DMAC	SMAC	16 bit VLAN frame type	16 bit VLAN 0 & priority	Flow frame type	32 bit flow label	Frame type	Data

DMAC	SMAC	VLAN frame type	VLAN 0 & priority	Source frame type	32 bit source label	Frame type	Data

Frame formats with or without VLAN priority

FIG. 10

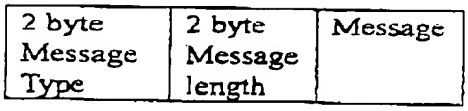
DMAC	SMAC	Type	Message

IP header	Message

UDP header	Message

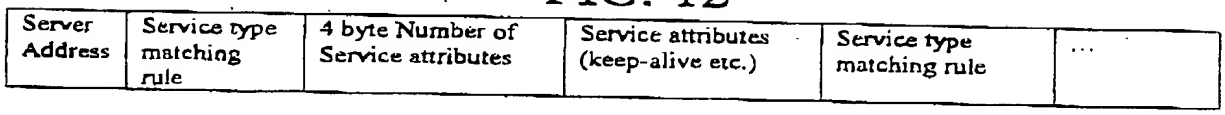
protocol message format

FIG. 11



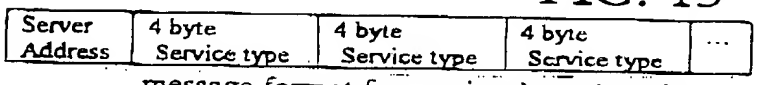
common message header format

FIG. 12



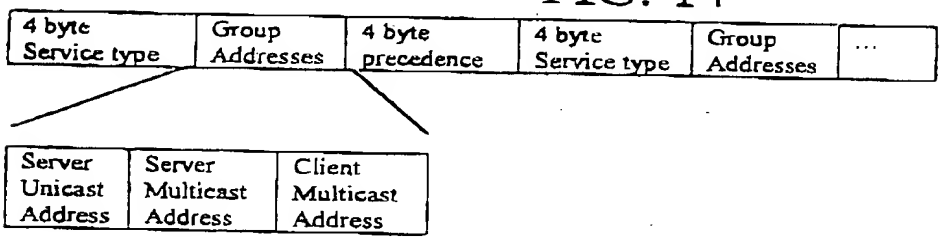
message format for service registration request

FIG. 13



message format for service de-registration request

FIG. 14

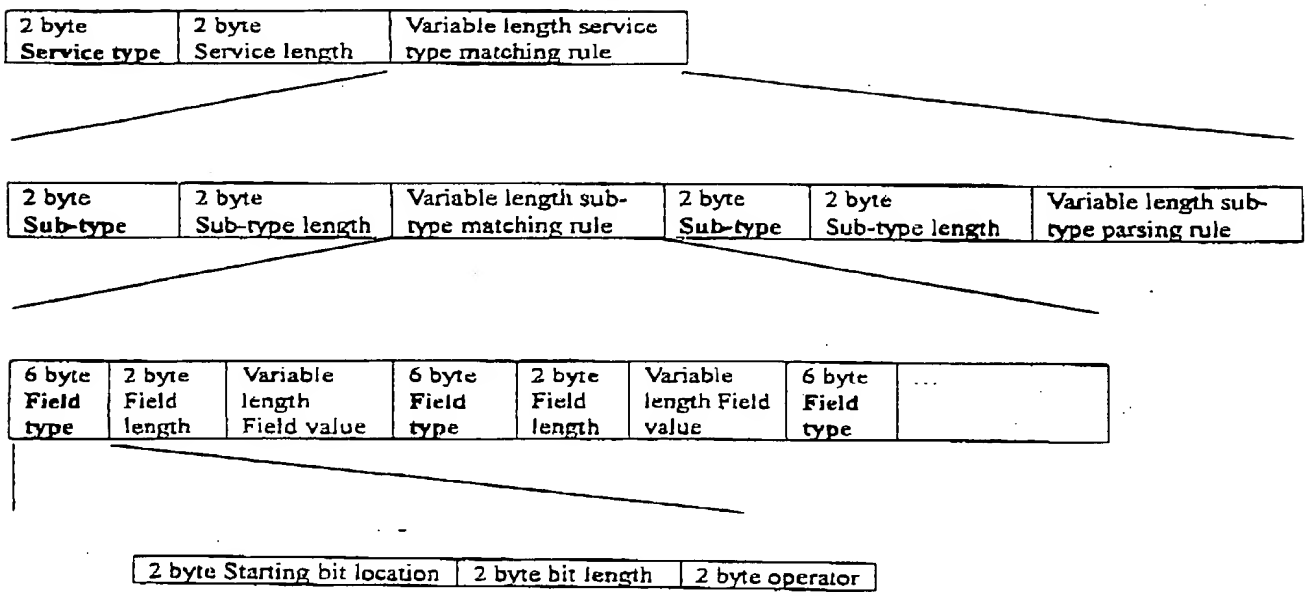


message format for service registration acknowledge

FIG. 15

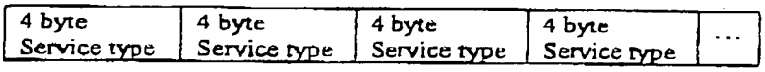
message format for service de-registration acknowledge

FIG. 16



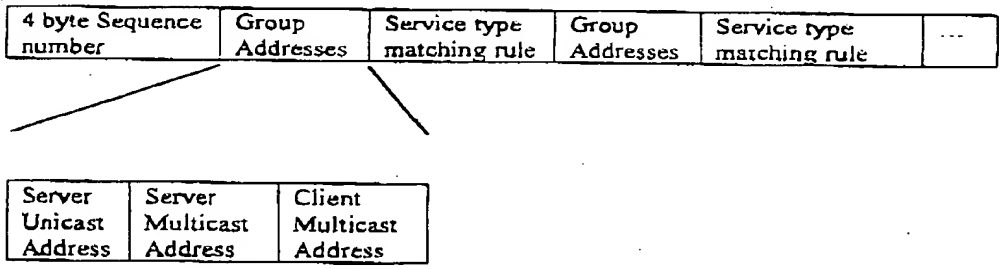
service type matching rule message format

FIG. 17



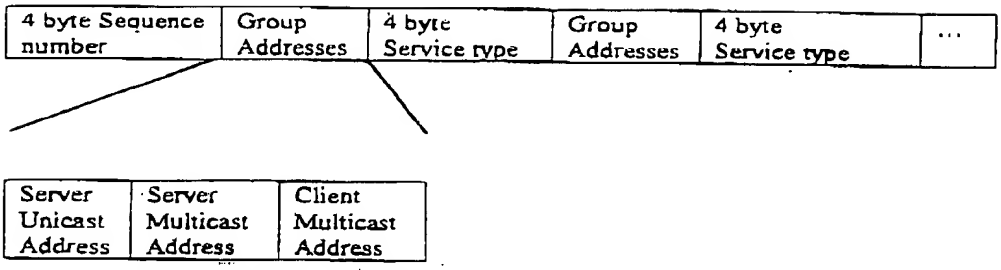
message format for service update request

FIG. 18



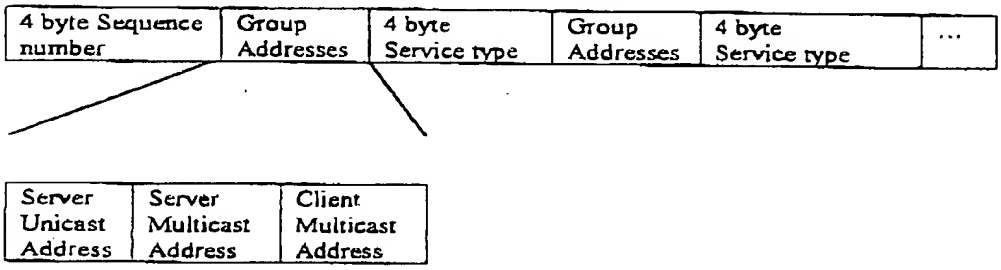
message format for service addition update

FIG. 19



Message format for service delete update

FIG. 20



message format for service update acknowledgement

FIG. 21

4 byte Service Type	Server Address	4 byte Number of Service attributes	2 byte Service attribute type	2 byte Service attribute length	Attribute value	2 byte Service attribute type	...

message format for service control advertisement

FIG. 22

Flow matching rule	4 byte Number of flow attributes	Flow Attributes	Flow matching rule	...

message format for flow advertisement

FIG. 23

Flow label	4 byte Number of flow attributes	Flow Attributes	Flow label	4 byte Number of flow attributes	Flow Attributes	Flow label	...

message format for flow advertisement acknowledgement

FIG. 24

2 byte flow Attribute type	2 byte Attribute length	Variable length Attribute value

message format for flow attribute

FIG. 25

4 byte total number of number types	2 byte Number type	2 byte Length	Values	2 byte Number type	...

Message format for Assigned Number Request

FIG. 26

4 byte total number of number types	2 byte Number type	2 byte Length	Values	2 byte Number type	...

Message format for Assigned Number Acknowledgement

FIG. 27

4 byte total number of number types	2 byte Number type	2 byte Number type	2 byte Number type	2 byte Number type	...

Message format for Assigned Number Update Request

FIG. 28

4 byte Sequence number	4 byte total number of number types	2 byte Number type	2 byte Length	Values	2 byte Number type	2 byte Length	...

Message format for Assigned Number Update

FIG. 29

4 byte Sequence number	4 byte total number of number types	2 byte Number type	2 byte Length	Values	2 byte Number type	2 byte Length	...

Message format for Assigned Number Update Acknowledgement